Indiana Department of Natural Resources

Lake Michigan Program Stocking Changes

Summary:

- The Indiana Department of Natural Resources is proposing changes to trout and salmon stocking practices after a lengthy review of the stocking program. The proposed changes are made with the goal of enhancing good fisheries by reallocating resources from poorly-performing stockings, while still providing a geographic and seasonally diverse trout and salmon fishery in Indiana waters.

- Research shows that small fall fingerlings do not survive well on the St. Joseph River due to the high number of predators and the hydroelectric dams. Research also shows that larger yearling fish returned to the St. Joseph River at higher rates than smaller yearlings**.** As a result, the focus on the St. Joseph River will be stocking large yearling fish (larger than 8.5 inches) in the springtime, and shifting smaller fall fingerlings to other tributaries, where they will survive at higher rates. This will increase the number of coho salmon and skamania steelhead available to both lake and stream anglers.

- The Indiana DNR goal is to have 5,000 fish pass the South Bend fish ladder in the summer and fall period. This goal has not been met consistently. Biologists believe that the new stocking regime will result in an average of 1500-2000 coho salmon and 3500-4500 steelhead during the summer/fall period, for a total of 5000-6500 fish.

Details of the Proposed Changes:

St. Joseph River Changes

- The overall number of coho salmon stocked will stay the same on the St. Joseph. However, 60,000 (of the 90,000 total) coho salmon will be held in the hatchery for an extra 6 months and will be stocked in the spring, which will allow them to grow larger. The larger size and spring stocking date means they will be much less vulnerable to predation by game fish and diving ducks, and will be able to navigate around hydroelectric dams.

- Fall skamania steelhead fingerlings will be reduced by 60,000 on the St. Joseph, because they were not surviving and contributing to the fishery (less than 1 percent return). These fish will be shifted to the Little Calumet River, which has fewer predators and no hydroelectric dams, which will result in higher smolt survival.

- Spring skamania steelhead yearling stockings will be reduced by 65,000 on the St. Joseph to make room for the 60,000 spring coho salmon yearlings. But the steelhead will be stocked at larger than 8.5 inches, rather than the recent average of 7.1 inches. This larger size will lead to higher survival and should more than make up for the reduced number of skamania stocked (see Figure 1 below).

Little Calumet River Changes

- The Little Calumet River system will see an increase of 75,000 fall skamania steelhead fingerlings, an increase of 20,000 winter-run steelhead, and a reduction of 35,000 yearling skamania steelhead.

- The Little Calumet River should provide a safer environment for the fingerling fish, and lead to higher survival than was occurring on the St. Joseph River. In addition, the winter-run fishery is often stronger on the Little Calumet due to the higher flow and slightly warmer water temperatures during winter. Adding 20,000 winter-run steelhead should make the winter and spring fishery even better.

Trail Creek Changes

- Trail Creek will lose 25,000 fall fingerling skamania steelhead and 20,000 fall fingerling winter-run steelhead, but gain 35,000 spring yearling skamania. As the best summer skamania stream fishery and the sole source of Indiana's skamania broodstock, Trail Creek will receive the extra yearling skamania to offset the approximately 600 adult steelhead harvested every year for broodstock.

FAQs

Why are some tributaries losing fish, but others gaining fish?

Indiana hatcheries can only produce a certain amount of fish. Each of Indiana's three tributaries which receive trout and salmon stocking has unique fish communities and physical environments. The new stocking changes ensures each tributary has a customized stocking plan to ensure the DNR is utilizing hatchery fish in a way that will provide the most fish for the most anglers. Different species and sizes of stocked fish require different conditions to survive to adulthood and return as adults to spawn, which is why some shifting of fall fingerlings is occurring.

Why doesn't Indiana only stock yearlings, since they survive at much higher rates than fingerlings?

Although yearlings survive better, they also cost more to raise and take up more hatchery space. Due to the different spawning time and hatchery residence time of chinook salmon, coho salmon and steelhead, hatcheries are constrained by logistics of available hatchery space. Fall fingerlings are a relatively cheap "bonus" fish that can be squeezed into the hatchery schedule, which is already at maximum capacity for yearling fish (see the Hatchery Cycle Chart below).

How will Skamania steelhead return to the St. Joseph River if stocking numbers are being reduced?

Research shows that there is an exponential relationship between smolt size and survival to adulthood. By growing the smolts larger, biologists believe that the survival rates will be so much higher that more fish will survive to adults than before, even though number of skamania steelhead stocked is lower under the new stocking plan.

How will these stocking changes be evaluated?

Stocking changes will be evaluated using a combination of methods. The primary evaluation on the St. Joseph River will be specialized cameras and software inside the South Bend fish ladder, which count and identify each fish passing through. By using fin clips for coho salmon, biologists will be able to identify whether the fish was a fall fingerling stocking or a spring yearling stocking. For Trail Creek and the Little Calumet River, changes will be evaluated using the yearly creel (angler) survey, which measures catch rates, angler effort, and estimates how many fish are caught each year.

Additionally, an upcoming federally-funded steelhead mass marking project will allow evaluation of all steelhead plantings in Indiana. Changes will take 3-5 years to evaluate, because the trout and salmon need 1-3 years to mature in Lake Michigan before returning to the tributaries as adults.

Who can I contact to find out more about the stocking changes?

If you have further questions about the stocking changes, you can call the Lake Michigan Fisheries Office at (219) 874-6824, or email lkmichigan@dnr.IN.gov.

Figures and Graphs

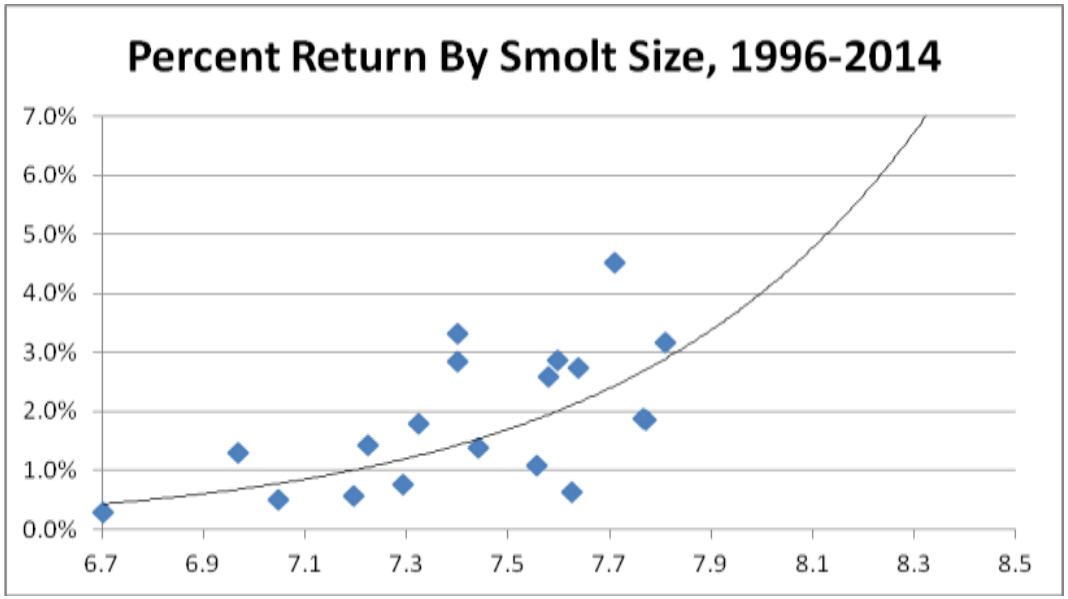

Figure 1. The percent return of skamania steelhead compared to the size at stocking (inches). The trendline (in black) that best fits these data suggests fish stocked at 8.5 inches could achieve returns higher than 7 percent to Indiana waters on average, which is much better than the recent average of approximately 2 percent. Research done in Michigan waters of the St. Joseph River in the early 1990s documented similar return rates for fish stocked larger than 8.5 inches. However, due to variable environmental conditions such as river flow, summer water temperatures, and Lake Michigan forage base, biologists expect a return of 5-7 percent to Indiana waters for steelhead stocked at 8.5 inches.

New target size for spring yearling skamania on the St. Joseph River

Old size for spring yearling skamania on the St. Joseph River

Fall fingerling size

HATCHERY CYCLE

This graphic shows a typical 18-month hatchery cycle. Once the eggs hatch (January for salmon; March for skamania steelhead; and May for winter-run steelhead), the baby trout and salmon go “on food” and are held in the hatchery until their designated stocking time. Because yearlings have to be held in the hatchery for 12-16 months (depending on the species and strain), there are always two different year-classes of fish at the hatchery, because new eggs arrive at the hatchery before the yearlings are stocked. Hatchery managers must stock some fish as fingerlings in late fall and early winter to make room for the new incoming year class, which arrives in early winter.